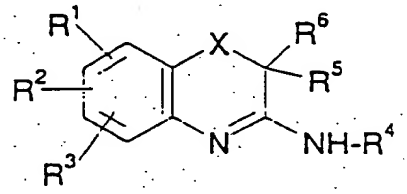
Claims

1. Compounds of Formula I, their tautomeric and isomeric forms and salts



(I)

in which

X is O, SO_m or Se,

R^1 is $-(CHR^9)_n-NR^7-A-NR^8-B$,

R^2 is hydrogen or

R^1 and R^2 together with two adjacent carbon atoms form a 5-, 6-, 7- or 8-membered ring, which is monocyclic or bicyclic, saturated or unsaturated and in which 1 or 2 CH_2 groups can be replaced by oxygen or carbonyl, and which is substituted with $(CHR^9)_r-NR^7-A-NR^8-B$, and can be substituted with C_{1-4} alkyl,

R^3 means hydrogen, halogen, NO_2, cyano, CF_3, $-OCF_3$, $-S-R^9$, $-O-R^9$, C_{3-7} cycloalkyl, $-NR^9-C(=NR^{10})-R^{11}$, $-NH-CS-NR^{12}R^{13}$, $-NH-CO-NR^{12}R^{13}$, $-SO_2NR^{12}R^{13}$, $-CO-NR^{12}R^{13}$, $-CO-R^{14}$, $NR^{15}R^{16}$, C_{6-10} aryl, which optionally is substituted with halogen, cyano, C_{1-4} alkyl, $-S-R^9$, or $-O-R^9$,

5- or 6-membered heteroaryl with 1 to 4 oxygen, sulfur or nitrogen atoms,

C_{1-6} alkyl, which optionally is substituted with halogen, $-OR^9$, $-SR^9$, $-NR^{12}R^{13}$, $=NR^{12}$, $=NOC_{1-6}$ alkyl, =N-NHaryl, phenyl, C_{3-7} cycloalkyl or 5- or 6-membered heteroaryl,

C_{2-6} alkenyl, which optionally is substituted with halogen, $CONH_2$, C≡N or phenyl,

C_{2-6} alkinyl, which optionally is substituted with halogen, $CONH_2$, C≡N or phenyl,

R^4 means hydrogen or acyl,

R^5 and R^6, independently of one another, mean hydrogen, C_{3-7} cycloalkyl, phenyl, C_{1-6} alkyl, C_{2-6} alkenyl or C_{2-6} alkynyl radicals, which can be substituted in each case with halogen, OH, $O-C_{1-6}$ alkyl, SH, $S-C_{1-6}$ alkyl, $NR^{15}R^{16}$, 5- or 6-membered heteroaryl with 1-3 N, O or S atoms, phenyl or C_{3-7} cycloalkyl,

R^7 means hydrogen, C_{1-6} alkyl, which can be substituted with phenyl, $COOC_{1-6}$ alkyl or $CO-C_{1-6}$ alkyl,

R^8 means hydrogen, C_{1-6} alkyl, which can be substituted with phenyl, $COOC_{1-6}$ alkyl or COC_{1-6} alkyl,

A means straight-chain or branched C_{1-6} alkylene, straight-chain or branched C_{1-6} alkenylene or $-(CH_2)_p-Q-(CH_2)_q-$,

B means hydrogen or $-(CH_2)_p-U$,

Q means C_{3-7} cycloalkyl, indanyl, 5-, 6- or 7-membered saturated heterocycloalkyl with 1-2 N, O or S atoms,

Sub A1

C_6-C_{10} aryl or 5- or 6-membered heteroaryl with 1-3 N, O or S atoms, which can be anellated with benzene,

U means hydrogen, C_{1-6} alkyl optionally substituted with halogen, C_{3-7} cycloalkyl, indanyl, C_{7-10} bicycloalkyl, C_{6-10} aryl or 5- or 6-membered heteroaryl with 1-3 N, O or S atoms, which can be anellated with benzene, whereby the aryl and heteroaryl radical can be substituted with halogen, C_{1-4} alkyl, C_{1-4} alkoxy, CF_3, NO_2, NH_2, $N(C_{1-4}\ alkyl)_2$, cyano, $CONH_2$, $-O-CH_2-O-$, $-O-(CH_2)_2-O-$, SO_2NH_2, OH, phenoxy or $COOC_{1-4}$ alkyl, or

R^8 and B together with the nitrogen atom form a 5- to 7-membered saturated heterocycle, which can contain another oxygen, nitrogen or sulfur atom and can be substituted with C_{1-4} alkyl, phenyl, benzyl or benzoyl or form an unsaturated 5-membered heterocycle, which can contain 1-3 N atoms and can be substituted with phenyl, C_{1-4} alkyl or halogen, or

R^7 and A together with the nitrogen atom form a 5- to 7-membered saturated heterocycle, which can contain another oxygen, nitrogen or sulfur atom or forms an unsaturated 5-membered heterocycle, which can contain 1-3 N atoms,

m means 0, 1 or 2,

n and r mean 0, 1 to 6,

p and q mean 0 to 6,

R^9 and R^{10} mean hydrogen or C_{1-6} alkyl

Sub A1

R^{11} means C_{1-6} alkyl, $-NH_2$, $-NH-CH_3$, $-NH-CN$, C_{6-10} aryl optionally substituted with halogen, C_{1-4} alkyl or CF_3, or 5- or 6-membered heteroaryl with 1 to 4 nitrogen, sulfur or oxygen atoms that is optionally substituted with halogen, C_{1-4} alkyl or CF_3,

R^{12} and R^{13} mean hydrogen, C_{1-6} alkyl, phenyl optionally substituted with halogen or C_{1-4} alkyl, benzyl optionally substituted with halogen or C_{1-4} alkyl, or C_{3-7} cycloalkyl,

R^{14} means hydrogen, hydroxy, C_{1-6} alkoxy, phenyl, C_{1-6} alkyl optionally substituted with CO_2H, CO_2C_{1-6} alkyl, hydroxy, C_{1-4} alkoxy, halogen, $NR^{15}R^{16}$, $CONR^{12}R^{13}$, or phenyl, or C_{2-6} alkenyl optionally substituted with phenyl, cyano, $CONR^{12}R^{13}$ or CO_2C_{1-4} alkyl,

R^{15} and R^{16} mean hydrogen, C_{1-6} alkyl, phenyl or benzyl or

R^{15} and R^{16} together with the nitrogen atom form a saturated 5-, 6-, or 7-membered ring, which can contain another nitrogen, oxygen or sulfur atom and can be substituted with C_{1-4} alkyl, phenyl, benzyl or benzoyl,

whereby

if X = 0, R^6 means methyl and R^2, R^3, R^4 and R^5 mean hydrogen, R^1 is not 6-((4-aminobenzyl)aminomethyl), 6-((4-dimethylaminobenzyl)aminomethyl), 6-((4-aminobenzyl)(tert-butyloxycarbonyl)aminomethyl), or 6-((4-dimethylaminobenzyl)(tert-butyloxycarbonyl)aminomethyl).

2. Compounds according to claim 1, in which R^5 is hydrogen.

3. Compounds according to claims 1-2, in which R^6 is C_{1-6} alkyl.

4. Compounds according to claims 1-3, in which R^4 is hydrogen.

5. Compounds according to claims 1-4, in which X is oxygen or sulfur.

6. Compounds according to claims 1-5, in which R^1 and R^2 together with two adjacent carbon atoms mean a 3- to 8-membered, preferably 5- to 6-membered ring, which is substituted with $-(CHR^9)_r-NR^7-A-NR^8B$.

7. Compounds according to claim 6, in which r = 0.

8. Compounds according to claims 1-7, in which A means a straight-chain or branched C_{1-6} alkylene or $-(CH_2)_p-Q-(CH_2)_q-$, and p and q mean 1-4.

9. Compounds according to claim 1, in which U means hydrogen, alkyl that is optionally substituted with halogen, C_{3-7} cycloalkyl and optionally substituted phenyl.

10. 6-((3-Aminomethyl)-benzyl-aminomethyl)-3-amino-2-methyl-2H-1,4-benzoxazine trihydrochloride

6-(meta-(N-[3-keto-2-methyl-2H-1,4-benzoxazin-6-yl]-methyl-aminomethyl-benzyl-aminomethyl)-3-amino-2-methyl-2H-1,4-benzoxazine trihydrochloride

6-(meta-(N-[3-amino-2-methyl-2H-1,4-benzoxazin-6-yl]-methyl-aminomethyl-benzyl-aminomethyl)-3-amino-2-methyl-2H-1,4-benzoxazine trihydrochloride

6-((4-aminomethyl)-benzyl-aminomethyl)-3-amino-2-methyl-2H-1,4-benzoxazine trihydrochloride

6-(para-(N-[3-amino-2-methyl-2H-1,4-benzoxazin-6-yl]-methyl-aminomethyl)-benzyl-aminomethyl)-3-amino-2-methyl-2H-1,4-benzoxazine trihydrochloride

6-(para-(N-[3-keto-2-methyl-2H-1,4-benzoxazin-6-yl]-methyl-aminomethyl)-benzyl-aminomethyl)-3-amino-2-methyl-2H-1,4-benzoxazine trihydrochloride

Sub AS

6-((3-aminomethyl-cyclohex-1-yl)-methyl-aminomethyl)-3-amino-2-methyl-2H-1,4-benzoxazine trihydrochloride

6-(3-(N-[3-amino-2-methyl-2H-1,4-benzoxazin-6-yl]-methyl-aminomethyl)-cyclohex-1-ylmethyl-aminomethyl)-3-amino-2-methyl-2H-1,4-benzoxazine trihydrochloride

6-((omega-aminobutyl-aminomethyl)-3-amino-2-methyl-2H-1,4-benzoxazine trihydrochloride

6-((omega-aminopentyl-aminomethyl)-3-amino-2-methyl-2H-1,4-benzoxazine trihydrochloride

6-((omega-aminohexyl-aminomethyl)-3-amino-2-methyl-2H-1,4-benzoxazine trihydrochloride

6-((3-[4-nitrobenzyl]-aminomethyl)-benzylaminomethyl)-3-amino-2-methyl-2H-1,4-benzoxazine trihydrochloride

6-((3-[2-methylbenzyl]-aminomethyl)-benzylaminomethyl)-3-amino-2-methyl-2H-1,4-benzoxazine trihydrochloride

6-((3-[2,4-dichlorobenzyl]-aminomethyl)-benzylaminomethyl)-3-amino-2-methyl-2H-1,4-benzoxazine trihydrochloride

6-((3-[3-chlorobenzyl]-aminomethyl)-benzylaminomethyl)-3-amino-2-methyl-2H-1,4-benzoxazine trihydrochloride

6-((3-[3,4-dichlorobenzyl]-aminomethyl)-benzylaminomethyl)-3-amino-2-methyl-2H-1,4-benzoxazine trihydrochloride

Sub A5

6-((3-benzylaminomethyl)-benzylaminomethyl)-3-amino-2-methyl-2H-1,4-benzoxazine trihydrochloride according to claim 1.

Sub A6

11. Pharmaceutical agent that contains a compound according to claims 1-10 and one or more pharmaceutically common vehicles or adjuvants.

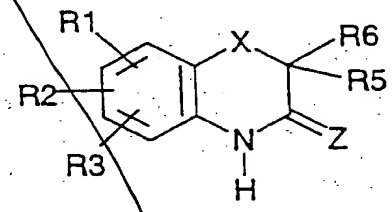
12. Use of a compound according to claims 1-10 for the production of a pharmaceutical agent for treating a disease that is triggered by NOS.

Sub A7

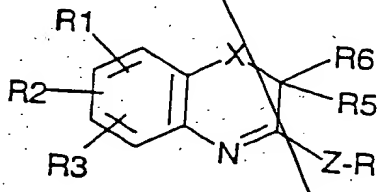
13. Use according to claim 11 for treatment of neurodegenerative diseases.

Sub A8

14. Process for the production of a compound of formula I according to claims 1-3, characterized in that a compound of formula II or its salt



IIa or

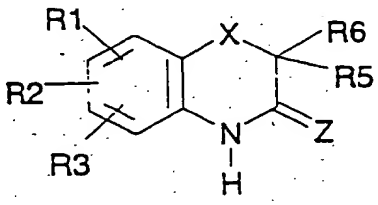


IIb

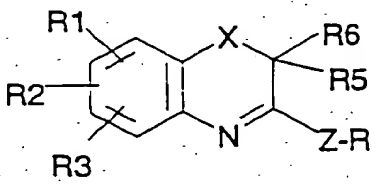
in which

R^1, R^2, R^3, R^5, R^6 and X have the above-mentioned meaning, Z is oxygen or sulfur and R means C_{1-6} alkyl, is reacted with ammonia or primary amines, whereby existing amino groups are optionally intermediately protected and optionally then acylated, the isomers are separated or the salts are formed.

15. Compounds of formulas IIa and IIb



IIa



IIb

in which

R^1, R^2, R^3, R^5, R^6 and X have the above meaning, X is oxygen or sulfur, and R means C_{1-6} alkyl.